UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/034,056	12/27/2001	Thomas Fuehrer	10191/2089	1828

26646 7590 07/05/2006	EXAMINER
KENYON & KENYON LLP ONE BROADWAY NEW YORK, NY 10004	JOO, JOSHUA

ART UNIT	PAPER NUMBER
2154	

DATE MAILED: 07/05/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

	Application No.	Applicant(s)
Office Action Summary	10/034,056	FUEHRER ET AL.
	Examiner	Art Unit	
	Joshua Joo	2154	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>05 April 2006</u>.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-34* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-34* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

Response to Amendment filed 4/5/06

1.   Claims 1-34 are presented for examination.

Continued Examination Under 37 CFR 1.114

2.   A request for continued examination under 37 CFR 1.114, including the fee set forth in

37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible

for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has

been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37

CFR 1.114. Applicant's submission filed on 4/5/06 has been entered.

Claim Rejections - 35 USC § 101

3.   Claims 19-21 are rejected under 35 U.S.C. 101 because the invention is not limited to

tangible embodiments (e.g., Computer program). As such, the claim is not limited to statutory

subject matter and is therefore non-statutory.

Claim Rejections - 35 USC § 112

4.   Claims 1-34 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for

failing to particularly point out and distinctly claim the subject matter which applicant regards as

the invention.

> i)   Regarding claims 1, 15, 17, 18, and 19, the claims states the limitation of "determining
> **the correction value** in the at least two stations of the distributed bus system, as a
> function of the correction target value". Because of the limitation of "**the** correction
> value", it is not clear if the correction value determined in the at least two stations are of
> the same value or if the correction value determined in each station is different, thus
> unique, for each station. If the value is the same, it is not clear as to why all the stations

> would generate the same value as one station may determine and transmit the "the
>
> correction value" to the other nodes.

   ii)   Regarding claim 18, the limitation of "memory arrangement" is not clear and renders the

claim as indefinite because it is not clear as to what "arrangement" is referring to. For

example, "memory arrangement" may refer to a medium, program, etc...

Claim Rejections - 35 USC § 103

5.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6.   Claims 1, 3-4, 6, 9, 11-15, 17-19, 22-23, 25, 28, 30-33 are rejected under 35 U.S.C.

103(a) as being unpatentable over Esker, US Patent #6,535,926 (Esker hereinafter), in view of

Gonzalez, US Publication #2002/0129291 (Gonzalez hereinafter).

7.   As per claims 1, 15, 17, 18, and 19, Esker teaches substantially the invention as claimed

for synchronizing the times of computing nodes with an external reference time. The computing

nodes, comprising of CPUs, are data or signal processing devices, which are connected in bus,

Esker's teachings comprising:

      synchronizing a common global time base with an external reference time at a

predefinable instant for the at least two stations of the distributed bus system by synchronizing,

in the at least two stations of the distributed bus system, at a predefinable instant, the common

global base with the external reference time as a function of a correction value and the common

global time base (Col 2, lines 45-50; Col 3, lines 25-32, 44-50. Receive periodic signals for

synchronization.), wherein the synchronizing includes:

receiving from a source external to the bus system a time signal of the external

reference time at least one of the at least two stations (Col 5, lines 37-47. Receive reference

pulse from GPS receiver. Col 1, lines 33-36; Col 5,lines 1-7. Bus.),

based on a content of the time signal, determining, in the at least one of the at least two

stations, the correction target value between a received time signal and the common global time

base (Col 5, lines 45-60. Determine snapshot time value.),

sending the correction target value to other ones of the at least two stations of the

distributed bus system (Col 6, lines 1-5, 26-29. Send snapshot time value to other controller on

the network.), and

determining the correction value in the to other ones of at least two stations of the

distributed bus system, as a function of the correction target value (Col 6, lines 30-34.

Determine error value.), and

providing the common global time base that is synchronized with the external reference

time at the predefinable instant for the at least two stations of the distributed bus system

(Abstract; Col 6, lines 38-40; Claim 1. Error value used to correct value of the clock. Col 2,

lines 45-50; Col 3, lines 25-32, 44-50. Receive periodic signals for synchronization.).

8.   Esker teaches substantial features of the claimed invention including determining a

correction value for the other one of the at least two stations receiving the correction target

value. However, Esker does not teach of determining the correction value in the station

receiving the external time reference.

9.   Gonzalez teaches a system for time synchronization, wherein the device receives an

external time clock, determines an error value, and synchronizes time based on the error value

(Claim 8).

10.   It would have been obvious to one of ordinary skill in the art at the time the invention was

made to combine the teachings of Esker and Gonzalez because the teachings of Gonzalez for

device receiving an external time clock to determine an error value and synchronize its clock

using the error value would improve the system of Esker by allowing the controller receiving the

external clock to determine errors and synchronizing its own time on the basis of the errors

values.

11.   As per claims 3 and 22, Esker teaches the invention, wherein the correction target value

is sent to the other ones of the at least two stations periodically (Col 3, lines 23-28. Receive

periodic reference signals. Col 5, lines 45-49. Reference signal used to generate snapshot

time value.).

12.   As per claims 4 and 23, Esker teaches the invention, wherein the correction target value

is sent to the other ones of the at least two stations if the correction target value is other than

zero (Col 6, lines 1-5. Transmit time message containing snapshot time value.).

13.   As per claims 6 and 25, Esker teaches the invention, wherein the correction target value

is contained in a separate message sent to the other ones of the at least two stations of the

distributed bus system (Col 6, lines 1-5. Time message containing snapshot time value.).

14.   As per claims 9 and 28, Esker and Gonzalez teaches the invention, wherein the

correction value is determined, in the at least two stations of the distributed bus system, using

error correction as a function of the correction target value (Esker: Col 6, lines 26-32. Gonzalez:

Claim 8. Determine error value.).

15.   As per claims 11 and 30, Esker teaches that the error value may be used to correct the

clock by changing the clock by the amount of error value (Col 6, lines 38-41). However, Esker

does not explicitly teach the method of claim 1, wherein the common global time base is

synchronized with the external reference time by adding the correction value to the common

global time base.

16.   Nonetheless, since Esker teaches of changing the clock based on the amount of the

error value, it would have been obvious to one of ordinary skill in the art at the time the invention

was made to synchronize the common global time base by adding the correction value, i.e. error

value, to the common global time base because using the correction value to adjust the clock

was known and doing so would provide an alternative method of utilizing the correction value for

time synchronization.

17.   As per claims 12 and 31, Esker teaches that the error value may be used to correct the

clock by changing the clock by the amount of error value (Col 6, lines 38-41). However, Esker

does not teach the method of claim 1, wherein the common global time base is synchronized

with the external reference time by multiplying the correction value by the common global time

base.

18.   Nonetheless, since Esker teaches of changing the clock based on the amount of the

error value, it would have been obvious to one of ordinary skill in the art at the time the invention

was made to synchronize the common global time base by multiplying the correction value, i.e.

error value, to the common global time base because using the correction value to adjust the

clock was known and doing so would provide an alternative method of utilizing the correction

value for time synchronization.

19.   As per claims 13 and 32, Esker teaches the invention, wherein the predefinable instant

for synchronizing the common global time base with the external reference time is explicitly

predefined (Col 2, lines 45-50; Col 3, lines 25-33, 44-50. Receive periodic signal for

synchronizing clocks.).

20.   As per claims 14 and 33, Esker teaches the invention, wherein synchronization of the

common global time base with the external reference time is trigger by transmitting the

correction value to a synchronization algorithm at an explicitly predefined instant (Col 6, lines 1-

5. Transmit time message.).

21.   Claims 2, 5, 16, and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Esker and Gonzalez, in view of Turski, US Patent #5,402,394 (Turski hereinafter).

22.   As per claims 2 and 16, Esker teaches of triggering synchronization by the detection of

the external reference signal (Col 3, lines 30-34). However, Esker does not teach the invention,

wherein a synchronization of the common global time base with the external reference time is

triggerable by comparing the common global time base with the external reference time.

23.   Turski teaches of synchronization by comparing the local clock with the external clock

(Col 5, lines 49-50; Col 8, lines 17-24.).

24.   It would have been obvious to one of ordinary skill in the art at the time the invention was

made to combine the teachings of Esker, Gonzalez, and Turski because all three teachings deal

with time synchronization. Furthermore, the teachings of Turski for synchronization by comparing the local clock and the external clock would improve the system of Esker and Gonzalez by allowing the controller to calculate its own time with reference to the external time (Col 8, lines 21-24).

25.   As per claims 5 and 24, Esker does not teach the invention, wherein the correction target value is sent to the other ones of the at least two stations upon a request by one of the other ones of the at least two stations.

26.   Turski teaches a system for time synchronization, wherein node requests time synchronization and receiving a synchronization object (Col 6, lines 4-7; Col 8, lines 1-4).

27.   It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Esker, Gonzalez, and Turski because the teachings of Turski to request time synchronization and receive a synchronization object would improve the system of Esker and Gonzalez by allowing a controller to control its time synchronization without waiting for the periodic correction target value.

28.   Claims 7, 8, 26, and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Esker and Gonzalez, in view of Kubala et al, US Patent #5,802,354 (Kubala hereinafter).

29.   As per claims 7 and 26, Esker does not teach the method of claim 1, wherein the correction target value is contained in a test message of the distributed bus system that is sent to the other ones of the at least two stations.

30.   Kubala teaches the concept of transmitting test data to nodes (Col 5, lines 21-31, 55-65).

31.   It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Esker, Gonzalez, and Kubala because the teachings of Kubala to transmit test data to nodes would improve the system of Esker and Gonzalez by allowing the controllers to be synchronized to a test clock value (Col 2, lines 33-46).

32.   As per claims 8 and 27, Esker teaches of transmitting correction target values. However, Esker does not teach teaches the invention, wherein the correction target value is contained in a test data present in a data message of the distributed bus system that is sent to the other ones of the at least two stations.

33.   Kubala teaches the concept of transmitting test data to nodes (Col 5, lines 21-31, 55-65).

34.   It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Esker, Gonzalez, and Kubala because the teachings of Kubala to transmit test data to nodes would improve the system of Esker and Gonzalez by allowing the controllers to be synchronized to a test clock value (Col 2, lines 33-46).

35.   Claims 10 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Esker and Gonzalez, in view of Walter et al, US Patent #4,980,857 (Walter hereinafter).

36.   As per claims 10 and 29, Esker does not teach the method of claim 9, wherein the correction value is determined, in the at least two stations of the distributed bus system, using Byzantine error correction as a function of the correction target value.

37.   Walter teaches using Byzantine data to check for occurrences in time error during a synchronization process for a multiple node processing system (Col 49, lines 21-24, 51-57).

38.   It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Esker, Gonzalez, and Walter because all the inventions deal time synchronization of nodes. The teachings of Walter to use Byzantine error correction would improve the system of Esker and Gonzalez by providing a specific time correction method and the detection of timing errors (Col 49, lines 51-57).

39.   Claims 20, 21 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Esker and Gonzalez, in view of Mincher et al, US Patent #5,408,506 (Mincher hereinafter).

40.   As per claims 20, 21, and 34, Esker does not explicitly teach the invention, wherein the memory arrangement includes one of a read-only memory, a random-access memory, and a flash memory.

41.   Mincher teaches of a distributed time synchronization system, where each node within the system comprises RAM and ROM for storing application programs (Col 6, lines 13-15; Col 6, lines 24-26).

42.   It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Esker, Gonzalez, and Mincher because all three teachings deal with time synchronization. Furthermore, the teachings of Mincher for a node to comprise RAM and ROM would allowing the nodes in Esker and Gonzalez's system to store information and process tasks (Col 6, lines 27-28; Col 6, lines 36-41). Furthermore, flash memory is a well type of memory in the art, therefore it would have been obvious to implement flash memory because doing so would provide a writable nonvolatile storage for storing applications.
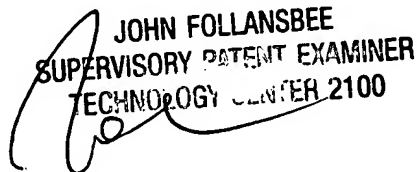
Conclusion

43.   A shortened statutory period for reply to this Office action is set to expire THREE

MONTHS from the mailing date of this action.

44.   Any inquiry concerning this communication or earlier communications from the examiner

should be directed to Joshua Joo whose telephone number is 571 272-3966. The examiner can

normally be reached on Monday to Thursday 8AM to 5PM and every other Friday.

45.   If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, John A. Follansbee can be reached on 571 272-3964. The fax phone number for

the organization where this application or proceeding is assigned is 571-273-8300.

46.   Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private

PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

June 20, 2006
JJ

JOHN FOLLANSBEE
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100